Microsoft

Microsoft Comments to IDA regarding the Valoris Report

"Comparative Assessment of Open Documents Formats Market Overview"

Part 1: Preliminary comments

Microsoft values the ongoing dialogue with the IDA in relation to data interoperability and document formats and we very much appreciate the opportunity to provide detailed comments on the report referenced above. The Valoris report was reviewed by Microsoft technical experts and members of our legal department who are familiar with both the technology and the Microsoft XML licensing program. These preliminary remarks below are intended as an introduction; the second part of this paper explains relevant aspects of Microsoft's vision for XML on the desktop, and its licensing of Office 2003 XML Reference Schemas. Both this introduction and Part 2 provide context for the detailed comments to specific portions of the Valoris report, which are set out in Part 3.

Microsoft found the Valoris report to be informative, broadly accurate and generally well-researched. As an assessment of document formats available in the market today, the report provides helpful historical perspective together with a useful description of the two selected formats. In particular, we noted the well-researched technical description of the Microsoft XML Reference Schemas. On this subject the authors demonstrate a deep and balanced understanding of the technical elements that relate to the criteria of openness defined in the report.

Not surprisingly in a document of this length and complexity, the report contained a small number of inaccuracies and we have endeavoured in Part 3 to identify some of these and provide what we understand to be the correct information. The report also contains several conclusions and commentaries that in our view are not necessarily supported either by the contents and analysis of the report itself or by the broader facts. In these instances we have indicated our perspective and, where appropriate, have set out other conclusions that may reasonably be drawn. We have not attempted to address all errors, and have limited our comments to points that may be of most interest to IDA in this or future inquiries, or that are simple factual corrections.

There are instances where the report appears to draw conclusions on legal issues although the authors acknowledge elsewhere that they are not qualified to make such judgments. We would recommend that IDA bear this in mind when assessing the validity of such conclusions. Although Microsoft's Office 2003 XML Reference Schema

license is very recent, we believe that there will become available independent legal analyses of this and similar licenses that will assist IDA's understanding.

We question whether the authors have provided in section 6 a thorough analysis of a subject as sophisticated and complex as market dynamics. While the report is broadly accurate and well-researched when dealing with technology issues, in our view the economic analysis is less complete. We would encourage IDA to give due consideration to this concern when assessing Section 6 of the report.

We trust that IDA will find the comments that follow helpful in the review of the report and assessment of its findings. We remain at IDA's disposal should any further explanation or clarification with respect to these comments or any additional information be required.

Part 2: XML on the desktop: Microsoft's approach

Section 3.3 of the Valoris report contains a very useful description of the "Microsoft XML Strategy." The report notes the value of XML in representing structured, unstructured, and semi-structured information. Microsoft strongly agrees with the report's commentary that:

> "With XML there remain no barriers between document processing, content management, ERP and other systems. With XML, we shift away from a paper-based document paradigm to one where documents and data are intertwined."

The report correctly states that Microsoft is a very active member of the W3C, followed "XML evolution at every step" and took the strategic decision to make Office compliant with XML. The report emphasizes that Microsoft Office "support for XML is full-fledged", pointing out that there is "[n]o limit to one schema" and "[s]upport for custom design schemas." Likewise, the report states that Microsoft "does not believe that the market can be satisfied by a unique schema."

These comments highlight very important aspects of Microsoft's approach towards XML on the desktop. We offer additional comments here in order to facilitate a complete interpretation of our specific comments in Part 3 about custom-defined schemas, cross-platform interoperability, display-oriented schemas, and standardized solutions.

With many public administrations, companies and industries having seen great benefit from the use of XML, primarily for exchanging data between back-end servers, the introduction of XML-enabled desktop applications with support for customer-defined schemas carries the potential for more cross-platform integration for even greater data access and collaboration benefits.

Unlike HTML, XML is a meta-language enabling companies to define their own file formats through the creation of custom-defined XML schemas. The growing industry trend to support customer-defined schema is enabling public administrations workers to create and interact with documents that contain regions of meaning, in the same way that information in a structured or relational database has meaning. With such support, XML brings the power of traditional data management to bear on documents, facilitating

reuse, indexing, search, storage, aggregation, and other practices more often associated with management of relational databases.

XML and reuse of data

XML represents more than a simple data or document exchange protocol; its founders originally envisioned XML as a way to capture more of the *meaning* locked within documents by defining the structure and context of the information these documents contain instead of only describing the way those documents are displayed.

Although there are well-established methods for storing and managing data types (for example, numerical data in databases), a significant portion of the information created in the government or business environment is not captured in any meaningful way and thus can't really be accessed or reused. Workers everywhere generate reports, e-mail messages, documents and spreadsheets that contain vital, valuable information. But if they need to reuse this information, these same workers may also spend significant time searching for the appropriate files and subsequently spend time and effort to re-key, cut, paste, or otherwise import the relevant information into another document. The way these documents are created and handled tend to limit the extent or ease with which the information can be used outside the original document.

While data capture and validation is a well established methodology for traditional data management, the technology to similarly gather and manage the information contained in text-based reports and other common government or business documents has not been available. This was the problem that XML's creation solves, through enabling the use of custom-defined schemas. XML enables governments and businesses to capture all manner of information in a way that maximizes its value. By facilitating reuse, indexing, search, storage, aggregation, and other practices more often associated with management of relational databases, XML brings the power of traditional data management to bear on documents.

Working with custom-defined schemas

With the use of custom-defined XML schemas, needed information can easily be properly extracted from any document at any time and interchanged with any organization or other application using database-related techniques.

By defining their own XML schemas, public administrations gain the ability to decide exactly what data to capture and how this data is structured. With documents functioning at this level of "storage," administrations have the capability to aggregate, parse, search, manage, and reuse documents, document fragments and domain knowledge in the same way they do their other data.

XML also enhances interoperability across heterogeneous and cross-platform systems at the new and fundamental data level for documents, allowing data to be restructured, aggregated and presented in new and different ways rather than simply allowing a second platform to display the same data in the same order.

Intelligent Applications for eGovernment

XML offers exceptional potential for automating virtually any task that involves working with documents. Creating documents such as reports, spreadsheets, and forms with an attendant XML schema—even if that schema is hidden to the users—enables

developers and government IT pros to build interoperable solutions that recognize the structure and meaning of the content within those documents and respond intelligently to the user. Information from custom-defined schemas can also be used to validate information or data as it is entered, avoiding errors and aiding in data cleansing and standardization.

The ability for governments to define their own schemas allows them to identify the unique regions of meaning within their documents and to create solutions that correlate these structures to their own eGovernment processes. Because the actual content is separate from the presentation of the content, these solutions can be tailored to display the same information in many different ways, as appropriate for a particular task, user, or process.

Moreover, the ability to identify sections of a document structurally—or to recognize specific content within a section—allows developers to create applications that respond intelligently to user input, offering context-sensitive actions and guidance, suggesting required content, or providing supporting data or links to related information.

Because the client software understands the content in the document, through the custom-defined XML tags, intelligent applications present endless possibilities for helping users interact with documents. The advent of such solutions will revolutionize the way users create and work with documents. Intelligent applications will guide and facilitate the creation of documents, reducing the time spent on traditionally manual tasks.

Microsoft Office support for custom-defined XML schemas and cross-platform data interchange

The Microsoft Office System supports the creation and manipulation of an unlimited set of XML schemas as needed by customers to define the content of their business documents. Support for custom-defined schemas in Office 2003 is the fundamental enabler for data interoperability. Documents can be created in Office 2003 following the XML schema defined by the customer using the W3C XSD standard. Any Microsoft or non Microsoft XML environment, client or server that support the W3C XML and XSD standards can then consume those documents. XML documents created by Microsoft or non-Microsoft systems belonging in the customer-defined XSD can be read and analyzed by the Office 2003 system.

The wide adoption of XML standards along with XML customer-defined schema capabilities across the Microsoft Office System open doors to many new innovative applications that can lead to better use and reuse of information. XML support in Microsoft Word 2003 enables authoring and saving of rich content in custom file formats based on customer-defined XML schemas, enabling the repurposing of document content across devices, platforms and processes.

Support for customer-defined XML schemas enables users to preserve or extract from the document selectively the data or structural elements of interest to a particular application. In either case, users can create documents containing information marked by XML tags belonging to the custom-defined schema in a completely intuitive fashion; users need not learn or understand the concepts behind XML to realize the full benefit. Public administrations, on the other hand, greatly benefit from the aforementioned advantages of using a custom-defined XML schema to insure that the information the

user enters is of a high quality, has contextual meaning for the eGovernment process at hand and can be easily reused.

Like Word 2003, Excel 2003 can read custom XML files as defined by customer-defined schemas. This enables Excel 2003 to act as a smart client for XML Web services and a host for smart document solutions that require analytical and calculation capabilities rather than rich text formatting.

InfoPath 2003 uses a forms metaphor to capture information according to a customer-defined XML schema. InfoPath enables governments to gather and reuse information with predefined structure (pre-tagging) and as part of a eGovernment process. InfoPath supports only XML file formats based on customer-defined schemas enabling users to interoperate with any Microsoft or non-Microsoft platform that produces or consumes XML files belonging to the customer's XSD.

Documentation and licensing of Office 2003 XML Reference Schemas

In addition to supporting the W3C XML standards and integrating innovations such as custom-defined schema and XML Web services, Microsoft Office 2003 includes Spreadsheet ML and WordProcessing ML as schemas to provide customers with added functionalities. Microsoft provides full documentation of the WordProcessing ML and Spreadsheet ML reference schemas at http://www.microsoft.com/office/xml. It also provides a royalty-free license for anyone, including competitors, to use this technical information to understand the structure, tags and formatting in these documents and to develop and distribute software programs that can read and write files that are compatible with these schemas.

The Office Reference Schemas license offers royalty-free rights both to Microsoft's issued patents as well as patents that may be issued in the future as an outcome of the patent application process. A goal of the licensing program is to provide licensees with transparency and clarity about the scope of the license.

This Microsoft license follows a common approach to intellectual property license grants by expressly stating the activities included within the scope of the license, as opposed to describing the activities that are not. As stated in the License Agreement, the licensee has the right "to make, use, sell, offer to sell, import, and otherwise distribute Licensed Implementations solely for the purpose of reading and writing files that comply with the Microsoft specifications for the Office Schemas". A "Licensed Implementation" means only those specific portions of a software product that read and writes files that are fully compliant with the specifications for the Office Reference Schemas.

We appreciate that the Valoris report focuses primarily on technical aspects of open file formats, and that legal aspects may require separate analysis. Microsoft has sought to provide relevant information about the licensing issues to IDA, and believes that this license provides governments the broad availability and limited restrictions required by governments to enable document interoperability. Additional answers to frequently asked questions about the Microsoft license are available at http://www.microsoft.com/office/xml/faq.mspx.

XML, Rich Authoring Tools, and Standard solutions

As a meta-language that enables customers to define their own data-interchange document file formats, XML allows users to achieve data exchange interoperability in a

heterogeneous environment. XML also permits software vendors to differentiate their product offerings through innovation in how data is presented or displayed even as they support data interchange interoperability through support of customer-defined schema. This promotes innovation and competition between product offerings, which is a benefit to public administrations and all users.

Contrast this with what would happen if there were only one schema, which controlled both how data interchange occurs and information on how the data must be presented. Public administrations would be unable to define the eGovernment process-specific organization and display of information that they needed, and additionally, innovation in presentation and display of data by vendors offering software products and services would be inhibited.

Despite the challenges inherent in achieving both data interoperability and display/presentation consistency between products, there has been amazing progress over the last several years, both in the ability to achieve rich data exchange without loss of data context, as well as the ability to achieve the exchange of documents while preserving increasing levels of display and presentation consistency. Today, customers of XML and XML Web services create custom-defined schemas and then use technologies such as XSLT (XSL transforms) or products such as Microsoft BizTalk server, IBM WebSphere, WebMethods or BEA WebLogic to implement easy transformations between custom-defined schemas or display oriented schemas.

As originally envisioned, XML schemas were intended not as the basis for a single, all encompassing standard for file formats. Indeed, XML's greatest promise is in enabling every organization to define custom schema that best represent the *data* that makes sense for their organization. While this assumes a proliferation of schemas, the fact that each schema is based on XML allows this to occur without sacrificing interoperability.

The focus of most organizations on data interoperability does not mean that software such as Microsoft Office System 2003 will not provide effective mechanisms for enabling greater *display and presentation* consistency as well. For example, a standard XSLT could be created to always format the data from one agency to have a common look for published materials, and in fact a different XSLT could be used to format the data differently depending on the display medium (paper, computer application screen, Web browser, PDA).

In the public sector, Microsoft and other industry partners encourage government agencies and parliaments to specify how their documents should appear by defining as many XSLT style sheets as are needed, using any display characteristics available on the market, and more importantly maintaining them, changing them and making them evolve at will. eGovernment processes will certainly evolve, and that evolution will be enhanced for administrations that provide themselves with the flexibility to do so. This approach of enabling public sector agencies to define exactly how public documents will be displayed is far better than requiring all agencies to generate documents in a static display-oriented schema that cannot evolve easily.

Interoperability and collaboration

As organizations around the world begin to embrace the promise of XML, there will be a significant need to engage in dialogue between the technology industry, governments, parliaments, and the many organizations that hope to deploy this technology. While different entities will ultimately choose different paths, the collective

interest in interoperability and innovation will require significant collaboration. For their parts, governments and parliaments have an opportunity to create custom schemas as one means to advance data exchange interoperability. In addition, popular XML techniques based on transformations (e.g. the W3C XSLT standard) enable richer document display and data exchange interoperability, where necessary, between public sector documents, authoring tools, back-end systems and databases.

Part 3: Comments on specific portions of the Valoris Report

In this Part, we identify specific portions or quotations on specific pages of the Valoris report, followed by comments directly relevant to that portion of the report.

Executive Summary

Page 7*: "Except for some technical details, these [Microsoft] formats seem to be completely documented"*

- Microsoft has sought to fully document the Office 2003 XML Reference Schemas. We are uncertain what technical details are referred to here, and would be pleased to provide any missing documentation.

Page 8 : Two comments on this page, and similar references elsewhere in the document, indicate that OpenOffice.org's format is a multiplatform option, or has an advantage for *"interoperability across platforms"*

- There is no inherent architectural platform limitation to Office 2003 XML Reference Schemas. Conceivably, word processing applications running on different platforms could be programmed to read and write Office XML documents.

Section 2

2.1.2 Document Format

Page 13*: "It is therefore now increasingly important to standardise the document format by publishing its specifications and making them available."*

- It appears that the reference to standardization suggested herein could, in light of the remainder of the document, be misinterpreted. We do agree with the authors' opinion that it is increasingly important for document format specifications to be published and made publicly available in terms somehow consistent with the definition of openness described in 3.4.3 (where actually the words "an open standard" could more precisely be replaced by "an open document specification").

2.1.4.1 The XML standard: Background

Page 14: "*It was chaired by Jon Bozak of Sun ….*"

- More precisely, this could read: "It was co-founded by Sun, Microsoft, and a few other players such as a Arbortext and Softquad; it was chaired by Jon Bozak of Sun Microsystems. An XML Special Interest Group with a few hundred participants was also founded to discuss more broadly the decisions taken by the XML Working Group."

2.1.4.3 Facts about XML

Page 17*: "Unless imposed by the organization, authors usually reject adding XML structure to the content".*

- We acknowledge that has been the past experience, but with the recent advent of a new paradigm around the desktop as a gateway to back-end systems through XML, our experience is that authors are able now to author seamlessly XML documents with structure using custom-defined schemas to encourage access, management and re-use of information. This is a breakthrough trend, helping people to obtain the benefits of using XML on the desktop.

2.2.1 Open

Page 20: *"The minimal requirements for an open standard are that the document format is completely described in publicly accessible documents, that this description may be distributed freely and that the document format may be implemented in programs without restrictions, royalty-free, and with no legal bindings".*

- Although not directly an issue for the discussion of the Microsoft Office XML Reference Schemas (because they are royalty-free, and because they are not standards in the sense that they were not submitted to or adopted by any standards organization), Microsoft would like to emphasize that this definition of "open standard" is problematically narrow. This definition would be a significant problem if applied in other contexts. Many open standards are not royalty-free, for example MPEG4. Also, the phrase *"with no legal bindings"* seems likely to be misunderstood with respect to ownership of intellectual property rights, such as the copyright in the technical documentation and the patents that may be necessary to implement the technology in question.

2.2.2 Non Binary

Page 20: "*binary data stream (Microsoft Word, PDF)"*

- This reference to Microsoft Word as a format is not entirely correct. .Doc is the "out of the box" current default format for Word, but it is not *the* Word format. It is possible for any IT Professional or customer to set the default format for Word document to save Word documents as .doc, .rtf, .html and now .xml.

Page 20: *"Considering the rapid change in document formats, there is no satisfactory solution available based on proprietary document formats for documents that are required to be archived (for up to 60 years in government agencies)."*

- Microsoft offers to governments a license to its binary formats for specific purposes, including archiving. This license was introduced in 2002 specifically to address the type of long-term archiving needs that governments have.

2.2.4 Preserve format fidelity

Page 21*: "Documents can lose meaning and value if the layout or visual emphasis is altered. In legal or regulated environments, retaining fidelity may be a requirement for official communications or legally binding transactions…. We define presentation fidelity of a document format its ability to preserve the original layout of the document, regardless on which platform or computer the document is opened."* [see also discussion about presentation fidelity at pages 37-40: *"This brings us to the conclusion that no document format exists that guarantees absolute format fidelity."]*

- We completely agree with the authors' assessment. Preserving format fidelity is very difficult to achieve and as noted by the authors there is not any technology today (from Microsoft, from OpenOffice, or elsewhere) that enables perfect fidelity and achieves all other relevant objectives. Microsoft is ready to work with IDA to better understand the needs of the European institutions and to balance requirements for open document specifications and data interoperability with requirements for presentation fidelity.

2.3.1 Current Landscape: Overview

Page 24: *"There are many formats available. This fact increases the need for an ODF that could act as a pivot for cross-tool interoperability."*

- As later discussed in pages 37-42, there are a variety of related factors and tradeoffs – relating not only to formats but also to the features of alternative word processors. The report correctly points to a set of relevant criteria that can narrow the range of suitable formats.

2.3.3 RTF

Page 27: ***"Microsoft provides technical documentation of RTF, but there exists no normative document that specifies it."***

- RTF is documented on the Microsoft Developers Network (MSDN) and has been widely described and covered in various third party books.

  A URL for the documented specification for RTF version 1.6 is: http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnrtfspec/html/rtfspec.asp

Page 27: ***"XML reference schemas of Microsoft have recently replaced RTF for the future versions of MS Office."***

- RTF remains supported in Office 2003, alongside XML schemas.

[see also **2.4.2 Formats vs. Criteria**

Page 42: ***"RTF: The evolution of RTF followed closely the MS Word versions, and then stopped. We believe RTF has been replaced by the MS XML Reference Schemas."***]

2.3.7 MS XML Reference Schemas

Page 30: ***"Microsoft Corp. has announced on November 17th the availability of Open and – Free License for the Office 2003 XML reference schemas.***

- This should refer to "Royalty-Free" rather than "-Free."

Page 30: ***"The documentation seems complete which was not the case for the previous WordProcessingML versions"***

- Microsoft just shipped Office 2003 in October 2003, and there were no previous WordProcessingML versions – except beta versions, which due to the fact that they were still in development, one would not normally expect to be complete.

2.3.8 OpenOffice.org 1.1 / StarOffice 7.0

Page 31: ***"The OpenOffice.org format is an XML based format […]. Its use and extensibility is provided freely with no legal constraints."***

- The phrase "no legal constraints" is used loosely here and elsewhere in the report (e.g., page 57). OpenOffice.org provides licensed technology, and the license has terms and conditions regarding its use. The terms may be acceptable to many users, but they do define the rights of use and, as such, may be viewed as "legal constraints" by some.

- It could also be noted by the authors that even though the OpenOffice.org is an XML based format, a typical OpenOffice.org document file is a binary zip file containing the actual XML file format.

2.3.9 KWord

Page 32: ***"KWord is part of the Koffice Suite. The XML DTDs are freely available and they are open which means that they can also be modified by third parties."***

- Third parties cannot modify a schema and expect KWord (or any other word processor) automatically to support the new modified version of the schema.

Section 3

3.1 MS XML Reference Schemas - Introduction

Page 43: "*Windows 2003"*

- Probably refers to Windows Server 2003, or to Windows XP (the current desktop operating system version). There is no product named Windows 2003.

3.3 MS XML Strategy

The authors have understood well the overall Microsoft XML strategy. Below we point to some nuances that we would like to highlight in order to ensure readers are more fully advised:

Page 48: ***"What MS did not do is to submit the XML Reference Schemas to a standardisation body. The first reason is that MS is not yet ready to give up intellectual property rights although royalty free."***

- This misstates the standardization process. When one makes contributions to open standardization efforts, one is not actually "giving up" one's intellectual property. One might license the IP, under royalty-bearing or royalty-free terms, but one still owns the underlying IP itself.

- Microsoft's choice not to submit the XML Reference Schemas to a standardization body does not interfere with the overriding goals of interoperability and openness and particularly with the desire of many governments and customers to work with custom-defined schemas.

- Microsoft did not submit the XML Reference Schemas to a standardization body because they define XML formats that represent years of format innovation in Microsoft Office. As such, these schemas are mature and they have already shipped in a commercial product that has wide industry acceptance. This enables millions of documents created using previous and current versions of Microsoft Word to be saved to XML without feature loss.

3.4.1 Cross-platform Interoperability

Page 49: ***"one could in theory claim that [Microsoft Office 2003 XML Reference schemas] are portable to various heterogeneous platforms. However … this does not always hold true… Regarding MS XML Reference Schemas… we could express the following reservations:***

> ***"MS XML Reference schemas elements can contain proprietary objects. These objects are encoded in a standard-compliant fashion, but some of them may be executed only in a MS environment (ex. OLE)."***

- This statement is true, and is equally true of other formats as well, including the OOo file format. XML is extensible. Therefore, proprietary objects may be embedded. For instance, proprietary Java applets can be embedded in StarOffice documents. Perhaps this point can be stated as a neutral observation about extensible formats in general rather than a "reservation" that is specific to the Microsoft XML Reference schemas.

"The spreadsheet macros are spread within the content XML elements. It is therefore very difficult to isolate the code from the text by a third party program. Furthermore, these macros cannot be executed outside MS Office environment"

- Proprietary macros may be included in documents, but this is not a weakness of Microsoft's implementation of XML. The ability to manage macros is a feature of a word processing application.

- The Office XML schemas are a viable cross-platform solution. There is no inherent platform restriction in the Microsoft schemas.

3.4.4 Compatibility with OpenOffice.org

Page 53 : ***"In theory, Word 2003 should be able to edit OOo documents, if one considers the OOo schemas as 'user defined' ."***

- The OOo schema and the XML Reference Schema are display and feature oriented schema (as distinct from data-oriented schemas). Full interoperability at the display-level is difficult to achieve because it is difficult to choose a single feature set for all purposes (please refer to our white paper "Microsoft Office System XML File Formats" for a more detailed technical discussion of this point). However, there are multiple possibilities to achieve a certain degree of interoperability:

    - It is certainly possible to consider the OOo schema as 'user defined' and as such Word 2003 should be able to edit OOo documents. However, an entirely seamless user experience for creating documents would be difficult to achieve because of the nature of the OOo schema that contains some display-oriented (as distinct from data-oriented) XML elements.

    - An alternative solution for interoperability would be to write transformation filters between the OOo XML schema and the Office Reference Schemas. OOo interoperability is certainly improved with Office 2003 because the XML Reference Schema are now published and fully documented. Additionally, such transformations can be improved by the 'user defined' capabilities of Office 2003 when used in conjunction with a filter. This would help XML elements from the open office schema to be retained during an editing session within Office 2003 and thus could facilitate the reverse transformation.

Page 53: ***"making OOo work as a specific user defined schema implies developing all the XSL transformations, which could prove extremely difficult to manage for a large and heavy schema as OOo"***

- Some of those XSL transformations have already been written.

Section 5

5.2.4 Microsoft Office 2003

Page 67: ***"W3c XML digital signature compliant -- No"***

- Microsoft has not implemented this functionality, but it should be mentioned that with the license program any third party could add this to Word 2003 by signing the XML WordprocessingML document because WordprocessingML is 100% XML compliant.

Section 6

6.2.4 Costs and Savings

Page 70: ***Soreon Research***

- References to the Soreon research should be cautioned for the readers as the case scenarios used to develop the model were geographically limited and the variables used not inclusive of important factors such as deployment costs (well covered in the report). It might be appropriate to also reference well known firms such as Gartner, IDC, and Deloitte & Touche which have developed more robust and accurate models.

Part 4: Conclusion

Microsoft appreciates the thorough effort undertaken by IDA to examine the file format issues, and hopes that these comments contribute constructively to the continuing dialog with IDA in addition to addressing specific points of the Valoris report. We understand that the issues addressed here, and the needs of government, are complex, and we do not anticipate that all points can be resolved with one report. However, Microsoft believes that this report, and IDA's full examination, are important steps in the evaluation of these issues.